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This article has been accepted for publication in British Journal of Sports Medicine following peer review. The definitive copyedited, typeset version of Cowley, S., Bowman, B., Lawrance, M. (2007) Injuries in the Victorian thoroughbred racing industry. British Journal of Sports Medicine, 41(10), p. 639-643, is available online at:
<http://doi.org/10.1136/bjsm.2006.032888>

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Injuries in the Victorian thoroughbred racing industry

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Br. J. Sports Med. published online 14 May 2007;
doi:10.1136/bjsem.2006.032888

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FOR SUBMISSION TO THE BRITISH JOURNAL
OF SPORTS MEDICINE

**Injuries in the Victorian thoroughbred racing
industry**

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ABSTRACT

Background: There is increasing concern in Australia about safety within the thoroughbred racing industry. There has, however, been no reported analysis of injury data from Victoria or others states in Australia.

Aim: To analyse injury and workers compensation data recorded within the thoroughbred racing industry in Victoria.

Method: Workers' compensation injury claims recorded in the Victorian WorkCover Authority's (VWA) database and employee injury data recorded by Racing Victoria Limited (RVL) for the period July 2001 to June 2005 were analysed. All licensed jockeys and apprentice jockeys in Victoria are employed by Racing Victoria Limited (RVL) which records injuries reported by its employees.

Results: Employees other than jockeys made 71% of workers compensation claims during the period under analysis. 72% of these claims resulted from an interaction with a horse of which 250 (50%) were riding falls and therefore likely to be during track work. The majority of non-falls related claims made were associated with being kicked (32%) or stuck or hit by a horse (25%).

The majority of the RVL injury records referred to injuries reported by jockeys and apprentice jockeys and were associated with falls from a horse at a race meeting. However, 31% of injuries sustained by jockeys as a consequence of falls occurred during track work.

The majority of workers compensation claims reported by jockeys as a result of falls from a horse were fractures (46%), followed by contusions (18%). The most common location of these injuries was the lower limb (23%) followed by the shoulder (18%). The lower limb was also the most common location of injury (31%) as a result of a non-fall horse-related injury but the face or head was the second most common (20%) in this group. Among claims reported in the VWA workers compensation claims database by non-RVL employees similar patterns were found.

Conclusion: It is recommended that the injury and incident data collection systems within the industry sector are improved such that they are not only more complete but also accumulate more detailed information about the location of an incident or injury event; the activity at the time of the incident or injury event; and factors that may have influenced the occurrence.

KEYWORDS: horse; racing; thoroughbred; injury; prevention;

INTRODUCTION

The Thoroughbred Racing industry is one of the largest industries in Victoria providing over 30,000 full-time equivalent jobs and contributing over AUD\$140 million annually in taxes from wagering alone (1).

Three metropolitan race clubs and 80 country clubs operate four metropolitan, 52 country and 12 picnic racecourses in Victoria. During the 2004-2005 racing calendar there were 581 race meetings of which 130 were within the metropolitan area and 451 were in regional Victoria, attended by 1.647 million people. In addition there were 130 race trials. At the race meetings there were 4,646 thoroughbred races of which 155 (2.5%) were jumps races (1). In the season 2004-2005 9,315 different horses started at least one race and approximately 317 horses had at least one start in jumps races.

Racing Victoria Limited (RVL) is the peak racing body within the State of Victoria and it oversees and regulates the industry. Horse trainers are licensed by RVL and are the industry's largest employer group, undertaking activities relating to the preparation and presentation of a horse for racing. There are approximately 1,200 trainers registered in Victoria employing stable assistants, known as stable hands or strappers, and track riders to undertake track work duties. They also engage jockeys to ride during race meetings and undertake some track work.

During the year 2005 there were 277 licensed jockeys in Victoria. Jockeys are regarded as employees of RVL for workers' compensation purposes when they are riding horses at licensed training facilities or race tracks. Track riders and stable hands are generally employees of licensed horse trainers. In Victoria, workers compensation provides injured workers who have suffered a work-related injury or illness, with weekly payments to cover their loss of earning capacity, payment for medical expenses, and other reasonable expenses to assist them to return to work. The first 10 days of earnings are paid by the employer and employers are required to lodge claims with their insurer if the claim extends to more than 10 days lost time; if associated medical and like expenses exceed AAUD\$531; and if the injured worker requests that a claim be lodged.

Fleming et al (2) reported on horse riding related injuries in general and pointed out;

"A rider mounted on a horse is completely dependant upon the animal and a person anywhere near a horse is exposed to risk. Horses are unpredictable and emotionally liable. They are large powerful creatures that can weigh an average of 500kg and reach speeds of up to 60km/hr. Horse kick strength has been estimated at 400J, which is fourfold the test impact load of around 80-100J for most equestrian helmet standards. A kick from a horse can easily cause a skull fracture or intracranial haemorrhage. The rider is elevated (head up to 3m above the ground) and is in a head forward position with no restraining device, increasing the risk of ejections or falls. These combined factors allow horses to impart tremendous kinetic energy to their riders." (p210)

Speed (3), in addressing the welfare of retired Australian jockeys, adds that the thoroughbred jockey is travelling in this way while crouching over a tiny saddle, constantly changing direction and surrounded by others who are attempting to manage the same challenges.

In recent years the number of races and the number of horses in training has increased having a direct influence on exposure of employees to risk of injury. Recognition of some risk factors has resulted in a requirement that jockeys wear protective head wear and a protective vest while mounted on a horse; track riders must also wear similar protective clothing. However, while there is increasing concern about safety within the industry, influenced to a large extent by several fatal injuries sustained by jockeys during races, there has been no reported analysis of injury data from Victoria or others states in Australia. This is surprising given the value to the economy, the public interest and the media attention given to the sport (4, 5). Where reports are made regarding occupational safety in this sector, they are almost exclusively focussed on injuries among licensed jockeys; generally address the nature of the injury rather than cause; and refer to racing in countries other than Australia (5). Case reports regarding specific injuries to jockeys in the United States and Europe are not uncommon (see for example 6, 7-11) and Speed (3) suggests that in professional riding, the jockey is at great risk of serious injury that often results in long lay off periods, paralysis or even death.

In the absence of reports of data analysis in Australia, an analysis of the data contained within the Victorian WorkCover Authority's (VWA) workers' compensation claims database and the RVL injury recording system was undertaken. The analysis was one part of a larger project funded during 2005 by WorkSafe Victoria, the OHS regulatory body in Victoria that led to the development of strategies to reduce risk to people who work with thoroughbred horses.

DATA ANALYSIS

The objective of the analysis was to estimate the size of the injury problem within the industry and identify occupational groups that featured significantly among the injury data.

Workers' compensation injury claims for the period July 2001 to June 2005 recorded in the VWA database against the industry "Horse Racing" (WIC Code L9145C) were reviewed. The injury report forms are generally completed by the injured party or their employer at the time of or shortly after an injury was sustained. The RVL injury data set for the same period was also reviewed. This data set contains all injuries that are reported in writing to RVL via an injury report form and is limited to injuries suffered by jockeys and apprentice jockeys when engaged at race events, and barrier attendants and other RVL employees while undertaking activities under the employ of RVL. In general the injury report forms are completed by the injured party. Some of these injuries became workers compensation claims and appear in the VWA data set. However, RVL did not, for the period under review, identify those injuries that become compensable claims. To enable comparative analysis, RVL granted permission to the VWA to identify those claims in the VWA data set that were made by RVL employees. Among those data that are identifiable as claims made by RVL employees, it was possible to identify those that were jockeys and those that were other RVL employees.

Injuries within both data sets were categorised with regard to those that did and those that did not involve interaction with a horse. These categories were in turn categorised with regard to the way in which the injury was sustained to inform discussion about cause and hence prevention. Within the VWA data set, the claimants

were categorised as either RVL or non-RVL employees and among the RVL employees, jockeys were identified.

Within the RVL dataset a greater degree of separation was possible owing to the greater amount of detail discernable from many of the reports. All reports were reviewed and, where necessary, interpreted by a research assistant having expert knowledge of thoroughbred racing and occupational health and safety. The data analysis was approved by the University of Ballarat Human Research Ethics Committee.

RESULTS

During the period July 2001 to June 2005, 985 claims were recorded within the VWA data set having an estimated fully developed cost of AUD\$27,564,338. Of these 985 claims, 289 (29%) were made by RVL employees, of which 257 (89%) were made by licensed jockeys or apprentice jockeys. Of the 257 claims made by licensed jockeys or apprentice jockeys, 198 (77%) resulted from falls from horses, having average and median fully developed workers compensation claims costs of AUD\$41,923 and AUD\$12,815 respectively. The average and median fully developed workers compensation claims costs of horse-related non-falls was AUD\$25,044 and AUD\$10,462 respectively. Only 10 (4%) claims made by jockeys did not result from an interaction with a horse. Insufficient information was available within the accident text fields in the database to analyse these data further.

Non-RVL employees made 696 (71%) claims during the period July 2001 to June 2005, of which 489 (72%) resulted from an interaction with a horse. Of these, 250 (50%) were riding falls either as a result of being unseated (n=187 or 75%) or as a result of the horse falling (n=63 or 25%). These claims had average and median fully developed workers compensation claims costs of AUD\$34,574 and AUD\$9,466 respectively. The average and median fully developed workers compensation claims costs of horse-related non-falls injuries was AUD\$19,650 and AUD\$5,512 respectively.

The non-falls related claims made by non-RVL employees as a result of interacting with a horse were associated with being kicked (n=79 or 32%); being stuck or hit by a horse (n=61 or 25%); being crushed or pushed by a horse (n=56 or 23%); sustaining a strain or sprain while manual handling a horse (23 or 9%); being pulled by a horse (n=17 or 7%); and being bitten by a horse (n=7 or 3%); other injuries that could not be categorised (n=4 or 2%).

Among claims made by non-RVL employees (n=696), 198 (28%) were not associated with a horse. Of these, 72 (36%) were manual handling injuries; 36 (18%) were injuries resulting from slips and trips; 12 (6%) were emotional or psychological injuries; 3 (2%) were associated with vehicles; 3 (2%) with buildings structures; 3 (2%) with plant or machinery; and 30 (15%) could not be categorised.

The nature and bodily location of falls and non-falls injuries in the VWA workers compensation claims database that were reported by jockeys are shown in Table 1 & 2. Similar patterns were found among claims reported by non-RVL employees as shown in Table 3 & 4.

Table 1 Nature of affliction and bodily location of injuries reported in the VWA workers compensation claims dataset made by Jockeys and non-RVL employees for injuries resulting from falls from horses

Nature of affliction resulting from falls			Bodily location of injuries resulting from falls		
	Frequency			Frequency	
	Licensed Jockeys	Non-RVL employees		Licensed Jockeys	Non-RVL employees
Contusion	35 (18%)	37 (15%)	Back	18 (9%)	39 (16%)
Dislocation	6 (3%)	7 (3%)	Cranium	12 (6%)	12 (5%)
Fracture	91 (46%)	112 (45%)	Chest & abdomen	19 (10%)	17 (7%)
Intracranial	12 (6%)	15 (6%)	Face/head	6 (3%)	11 (4%)
Open wound	8 (4%)	2 (1%)	Lower limb	46 (23%)	73 (29%)
Strain	13 (7%)	25 (10%)	Neck	18 (9%)	17 (7%)
Traumatic joint injury	12 (6%)	19 (8%)	Shoulder	36 (18%)	32 (13%)
Other	21 (11%)	33 (13%)	Upper limb	29 (15%)	43 (17%)
			Brain	8 (4%)	4 (2%)
			Other	6 (3%)	2 (1%)
	198	250		198	250

Table 2 Nature of affliction and bodily location of injuries reported in the VWA workers compensation claims dataset made by Jockeys and non-RVL employees for injuries resulting from non-falls from horses

Nature of affliction resulting from non-falls			Bodily location of injuries resulting from non-falls		
	Frequency			Frequency	
	Licensed Jockeys	Non-RVL employees		Licensed Jockeys	Non-RVL employees
Contusion	10 (17%)	73 (29%)	Back	5 (8%)	17 (7%)
Dislocation	0 (0%)	5 (2%)	Cranium	0 (0%)	4 (2%)
Fracture	21 (36%)	69 (28%)	Chest & abdomen	6 (10%)	18 (7%)
Intracranial	0 (0%)	0 (0%)	Face/head	12 (20%)	41 (17%)
Open wound	8 (14%)	31 (13%)	Lower limb	18 (31%)	92 (37%)
Strain	6 (10%)	25 (10%)	Neck	4 (7%)	3 (1%)
Traumatic joint injury	4 (7%)	15 (6%)	Shoulder	4 (7%)	16 (6%)
Other	10 (17%)	30 (12%)	Upper limb	10 (17%)	53 (21%)
			Brain	0 (0%)	0 (0%)
			Other	0 (0%)	4 (2%)
	59	248		59	248

Analysis of the RVL injury records for the period July 2001 to June 2005 found 398 reports of which 359 (90%) were made by licensed jockeys or apprentice jockeys. Of all injuries reported, 379 (95%) involved a horse and all except one injury sustained by a jockey involved a horse. The one injury reported by a jockey that did not involve a horse was dehydration associated with wasting.

Of the 358 horse-related injuries sustained by jockeys, 270 (75%) were associated with falls from a horse of which 185 (69%) occurred at a race meeting. Most falls at race meetings (n=172) occurred during the race while 13 (7%) falls at race meetings

occurred on the way to the starting barriers or after the finishing line. Of the falls that occurred at race meetings (n=185), 172 occurred during flat racing and 31 occurred during jumps races. However, the absence of specificity in many reports renders these numbers unreliable.

Jockeys reported injuries sustained as a consequence of 85 falls during track work. This represents 31% of all falls from horses. The non-falls related injuries made by jockeys as a result of interacting with a horse were associated with sustaining a strain or sprain while manual handling a horse (n=28 or 32%); being stuck or hit by a horse (n=24 or 27%); being crushed or pushed by a horse (n=24 or 27%); being kicked (n=7 or 8%); being pulled by a horse (n=1 or 1%); other injuries that could not be categorised (n=4 or 5%). There were no reports of a jockey being bitten by a horse.

RVL employees other than jockeys reported no falls from horses. This group reported 21 non-falls injuries that resulted from interaction with horses. Of these, 13 (62%) injuries involved starting barriers; the majority being crushings. Five (24%) reports referred to be kicked by a horse; 1 being struck by a horse's head; 1 being bitten by a horse; and 1 being pulled while leading a horse.

Among injuries that were not associated with horses, reported by RVL employees other than jockeys, the majority were strain or sprain injuries sustained while undertaking grounds maintenance work.

Analysis of the RVL injuries data reveals similar injury patterns with fractures (31%) and contusions (17%) featuring significantly among jockeys as a result of falls from horses. The lower limb (23%), upper limb (17%) and shoulder (16%) were the most common locations of injuries. However, the RVL injury data base did not employ a standard nomenclature or systematic injury coding process for the period analysed and therefore there are relatively large numbers of injuries about which details may not be discerned.

DISCUSSION

The data analysis reveals significant numbers of injuries among licensed jockeys, track riders and stable hands representing claims costs in excess of AUD\$6million per annum. The median claims costs suggest that the injuries are significant given that the earnings of the majority of jockeys is less than AUD\$50,000 per annum (1). Details of average earnings of all jockeys and stable assistants are not available. The data is likely to be skewed in as much as under-reporting of injuries is prevalent and many injuries are carried by workers such that they may maintain their occupation and income (12).

McCrory et al (5) compared injuries sustained by jockeys riding races in Great Britain, Ireland and France and concluded that the injury rates differ significantly between the three countries examined, extrapolation of international data to Australian racing should therefore be undertaken with caution. Differences in racing styles, track design, climate, data collection and other variables influence comparisons. Notwithstanding this, the findings of the Victorian injury data parallel surveys of jockeys and reviews of injury data in the United States (13, 14), Great Britain and Ireland (4) that found fractures to be the most common injury with the leg

and shoulder being the most common site. Other common injuries were bruising; sprain; concussion; and dislocation.

Intracranial injuries feature within the Victorian data and concussion was mentioned within the accident text of twenty (10%) claims made by licensed jockeys that reported falls from horses. Turner, McCrory & Halley (4) reported that concussion was relatively common among jockeys in Great Britain and Ireland, the rate being higher for flat racing, which is attributed to the higher speed and horses being more closely bunched together so that jockeys sustain kicks from other horses, in addition to direct contact with the ground. Interestingly concussion was mentioned within the accident text of thirty-nine (16%) claims made by non-RVL employees that reported falls from horses and four (2%) that reported non-falls.

Non-RVL employees, largely being track riders and stable assistants (known as stable hands or strappers) made 71% of workers compensation claims during the period under review. The majority of claims made by this group followed injuries resulting from interactions with horses (72%). Half (50%) of the horse-related injuries were associated with falls from a horse and are therefore likely to be associated with track riding activities; track riders are employees of trainers who undertake riding activities for the purpose of training. While general horse care and race preparation takes place at trainers' premises the majority of track riding is undertaken at race tracks, predominantly on training tracks, and therefore at a third party's premises where the influence that the trainer-employer has over risk control is diminished.

It is generally recognised that those who handle horses are liable to be kicked, bitten, stepped on or struck by the animals (15, 16). Turner et al (4) reported that 30% of injuries in the UK & Ireland occur in the paddock and stalls, before and after races and injuries also frequently occur during track work and travel to the racecourse for training.

Half (50%) of the workers compensation claims recorded within the VWA dataset made by persons employed outside RVL that were associated with an interaction with a horse were not associated with falls. This suggests that they were suffered during animal care and race preparation activities. Thus, these claims are likely to have been made predominantly by stable assistants. The majority of the claims made for horse-related non-falls injuries followed kicks by horses (32%); being struck or hit by a horse (25%); or being crushed or pushed by a horse (23%). Many of these injuries were reported as fractures and contusions and have the potential to be serious injuries. Unlike most other industry sectors, manual handling injuries (i.e. sprains and strains type injuries) were not found to predominate. These findings parallel one of the few reports in the literature that address injuries to occupation groups other than jockeys which analysed injury patterns among 581 patients with horse-related injuries visiting clinics of a hospital in Hokkaido in Japan between 1985 and 1991 (17). The majority of injuries were sustained by workers employed in thoroughbred stabling areas and stud farms. Kicks were the most frequent mechanism of injury (39.2%), followed by falls from horseback (18.1%) and trampling (15.3%). Common areas of injury were chest (17.7%), shoulder and upper limb (20.4%) and the lower limb (23.7%). Bruises were most common (36.7%), followed by fractures (23.2%) and abrasions and lacerations (21.4%). The authors report that stabling activities produce injury patterns which differ from those of horseback riding.

The analysis of the RVL dataset found that 31% of falls-related injuries reported by jockeys were incurred during track riding. Thus it is clear that track riding is an activity that exposes riders to a significant risk of injury. However, there has to date been little interest in track riding safety within the literature and within racing organisations and most of the interest in terms of injury causation and prevention focuses on jockeys during racing activities. The literature provides evidence that supports this interest, identifying the potential for jockeys to sustain more serious injuries during races as a result of the speed and the likelihood of being struck by other horses that are following or adjacent, but clearly the significance of the risk during track riding should not be underestimated and track riding activities are clearly in need of examination. Similarly, strategies to prevent non-falls, horse-related injuries to employees other than jockeys require examination.

Anecdotal evidence from workers suggests that there is widespread under-reporting of less severe injuries and incidents during which injury was narrowly avoided (near-misses). A large number of these less-severe injuries were suffered as result of incidents that had the potential to be more serious.

Within the racing industry in Victoria there are some initiatives underway to increase and improve injury reporting and a web-based system to support such initiatives has been proposed by Cameron (18). However, to date, there has been no report of implementation or evaluation.

CONCLUSION

The risk of injury associated with work with horses in the thoroughbred horse racing sector is increasingly being recognised as in need of attention. The size of the OHS problem in this industry is, however, difficult to determine owing to the limited injury data collected by employers and the limitations on information contained within the workers compensation claims database. Further, anecdotal evidence from workers suggests that there is widespread under-reporting of incidents and injuries and records of injuries are, to a large extent, limited to those that are more severe and have led to workers' compensation claims. There are many near-miss incidents and incidents where a minor injury occurs where there was the potential for serious injury to have been suffered. Accurate estimation of risk is therefore difficult at this time.

The majority of reported injuries are associated with horses and the majority of those are falls from horses. While there is a great deal of interest in falls experienced by jockeys during races, approximately one third of injuries reported by jockeys were sustained during track riding and one-half of the claims made by non-RVL employees for injuries involving horses are sustained by track riders during training activities.

Many of the injuries reported by workers in the sector in Victoria were serious and involved fractures of bones and the patterns are similar to those reported in other countries where fractures to the lower limb, upper limb and shoulder predominate.

It is recommended that the injury and incident data collection systems within the industry sector are improved such that they are not only more complete but also accumulate more detailed information about the location of an incident or injury event; the activity at the time of the incident or injury event; and factors that may

have influenced the occurrence. RVL is currently piloting the development of improved injury recording systems and it is suggested that the success of such reporting systems will be influenced by the ability of RVL to educate club and facility management and users of those premises about their responsibilities in regard to hazard reporting and hazard control. This in turn will require those that have responsibility for hazard control to be seen to be more responsive to hazard reports and proactive in hazard control. Further recommendations for action to control risk within the sector are detailed elsewhere (12, 19) and include increasing the focus on the safety of riders during track riding through attention to track design and track work rules and procedures.

ACKNOWLEDGEMENT: The work reported in this paper was undertaken with the support of funding provided by WorkSafe Victoria

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Information Box

What is already known on this topic

Jockeys in the thoroughbred racing industry experience a high incidence of injuries. Falls from horses are a major factor in injuries and fractures of the upper and lower limbs prevail. This evidence is provided predominantly in reviews of the industry in the US and the UK and Ireland. Little is known about the injury experience of track riders and stable hands.

What this study adds

A review of injury data pertaining to the Australian industry has not previously been published. This study documents the experience of Australian jockeys and supports the evidence from other countries. This study also documents the injury experience of track riders and stable hands and highlights the significant and largely ignored number of falls experienced by licensed jockeys and track riders during track riding and training activities.

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